SELENIUM UPDATE
November 2004

The following is a brief overview and status report of the ongoing selenium related studies being conducted as part of the Imperial Irrigation District's (IID) Water Conservation and Transfer Project. More detailed information regarding these issues is provided in the various documents prepared as part of this project. The information presented here is preliminary and subject to revision.

EXISTING AND MODELED DATA

Selenium Concentrations

The Imperial Irrigation District Water Conservation and Transfer Project Final Environmental Impact Report/Environmental Impact Statement – June 2002 (Final EIR/EIS) contains corrected values for selenium (Se) concentration discharged from the New and Alamo Rivers into the Salton Sea. The concentrations noted in the table below reflect changes in the values resulting from the exclusion of unrepresentative data (a single value of 100 ug/L at the New River site). A more detailed explanation of the revisions is included in Section 3.1.2 of the Final EIR/EIS.

Mean Values for Selenium Concentrations in IID Water Service Area			
Value	**New River Outlet**	**Alamo River Outlet**	**Water Quality Criteria**
Historical	3.9 ug/L	7.7 ug/L	5.0 ug/L
Baseline	3.3 ug/L	6.3 ug/L	5.0 ug/L
Proposed Project	3.8 ug/L	7.9 ug/L	5.0 ug/L

Species Data

California Department of Game and Fish conducted desert pup fish (*Cyprinodon macularis*), mosquitofish (*Gambusia affinis*) and sailfin molly (*Poecilia latipinna*) population surveys, along with water quality analysis, within agricultural drains operated by Imperial Irrigation District (IID). Current information is from studies conducted from 1991 to 2002. It is anticipated that additional information will be available from ongoing analysis activity. The populations of sailfin molly and/or mosquitofish were identified as potential surrogate species for tissue sampling and selenium concentration analysis. Some of the surveys included analysis for selenium concentrations in the water and sediment as well as identification of the presence of surrogate species. While the existing data from these surveys is incomplete and, in some cases, outdated it does provide preliminary information for the identification of useable pupfish habitat sites and potentially suitable selenium concentration monitoring sites. The selenium monitoring

plan currently being prepared by IID will utilize information from these studies and others to identify potential sampling sites.

Potential Impacts

As determined in the Draft EIR/EIR and substantiated in the Final EIR/EIS elevated selenium concentrations in discharge water from the Alamo River, in IID surface discharge sites to the New River and in IID discharge sites to the Salton Sea are a significant and unavoidable impact. These impacts occur under several alternatives including the no project or baseline scenario. Several strategies were considered to mitigate for the anticipated impacts.

PROPOSED MITIGATION

As a potential mitigation measure the Draft and Final EIR/EIS evaluated several technology based methods for the removal of selenium from discharged tile water. None of the methods evaluated to remove selenium concentrations from the tile water were judge to be feasible or practicable and are not proposed as mitigation measures.

Given the determination that the removal of high selenium concentrations from the discharge streams are not practicable, mitigation to minimize the biological impacts of the discharges has been proposed. The proposed mitigation to minimize the biological impacts included development of monitoring and evaluation studies to monitor selenium concentrations in water, sediment and animal tissue. These studies will be designed to evaluate selenium concentrations and to better understand the mechanisms by which selenium is transported and accumulated within the ecosystem as well as how it might affect the reproductive output of various species. The proposed mitigation also includes creation of additional habitat areas to offset the reduction in reproductive output of species in the high concentration discharge areas and/or the introduction of additional lower concentration discharge water to reduce selenium concentrations to acceptable levels. As an additional mitigation effort, IID will evaluate the various activities associated with the proposed project and, where practical, make adjustments to operational methodologies to further reduce potential impacts.

IMPLEMENTATION OF MITIGATION MEASURES

Proposed Water Quality and Selenium Concentration Study

As required by Conservation Measure 2 of the Biological Opinion (USFWS 2002) and by the Conditions of Approval of California Endangered Species Act Incidental Take Permit (Permit No. 2081-2003-024-006), IID has proposed a monitoring program to identify the effects of selenium on desert pup fish. The monitoring program will evaluate water quality in 29 agricultural drains that are tributary to the Salton Sea. As proposed, the evaluation will include quarterly monitoring for up to four (4) years for physical parameters (water flow, depth etc), total recoverable selenium and water quality

parameters such as conductivity, temperature, dissolved oxygen and pH. Annual sediment samples will also be evaluated for total selenium, sediment particle size and total organic carbon.

Data from the first year of sampling and analysis will be evaluated to identify specific drains that will undergo more intensive semi-annual monitoring. The selected drains may be sampled and evaluated for selenium concentrations in the water column, in the sediment, the dietary component and in surrogate fish tissue. The criteria for identifying these drains may include total selenium concentrations (modeled or sampled), relative abundance of pup fish, presence of surrogate species (for potential tissue sampling) and flow levels.

The draft protocol for this study (Baseline Selenium Monitoring Plan for the Imperial Irrigation District Drains Tributary to the Salton Sea, Imperial Valley California Preliminary Draft - November 2004) is currently being evaluated by IID, the agencies and the project Implementation Team (IT). Once the protocol is approved, IID will begin the sampling and monitoring of the identified drains. The anticipated start date for the sampling is April, 2005.

Other Selenium Studies

While not a part of the IID Water Conservation and Transfer Project, IID will evaluate data from several other ongoing studies. IID is participating in a separate project with the Citizen's Congressional Task Force to evaluate the effectiveness of constructed wetlands in lowering non-point source pollutants, including selenium. The next phase of this study will include bird egg analysis, fish tissue analysis, plant tissue analysis along with water quality analysis. The anticipated start date for this phase of the study is March 2005. Additionally, the Bureau of Reclamation in cooperation with the US Fish and Wildlife Service, is conducting evaluations regarding selenium and other constituents in Imperial Valley irrigation drain water. This study is part of the ongoing interagency sponsored National Irrigation Water Quality Program, Data from both of these studies may be incorporated into the IID Water Transfer study.

Activity Protocols, Habitat Creation and Management

The CESA Permit, the Draft Multiple Species Habitat Conservation Plan and the Final EIR/EIS also require the development of activity specific practices to minimize impacts and the enhancement or creation of habitat for species included in the plans. The implementation of these mitigation measures requires the completion of several ongoing or proposed studies.

Studies such as the Drain Vegetation Survey will provide information regarding vegetation communities within and adjacent to irrigation drains operated by IID. This information will help in the development of habitat management techniques for managing or enhancing habitat areas, as well as helping to identifying candidate areas for habitat creation. Preliminary data from the Drain Vegetation Survey is expected by December of 2004. The IT has started developing criteria for the identification of potential locations for the Managed Marsh habitat mitigation. As the criteria are

developed the IT will begin evaluating the suitability of specific parcels as sites for constructed Managed Marsh habitat.

As information from these studies becomes available, IID will develop more specific plans for habitat management and protocols for specific activities to mitigate potential impacts from the proposed project.

SUMMARY

Selenium monitoring program: The IT and other agency members are currently reviewing draft protocol for the multiple year selenium monitoring program. The tentative date for initiation of the multi-year sampling program is April 2005. Currently sampling is planned at 29 agricultural drains that discharge to the Salton Sea. The US Fish and Wildlife Service/Bureau of Reclamation is also conducting an analysis program to evaluate selenium concentrations in the Imperial Valley area. This is a ongoing study that will not be completed for several years.

Tissue sampling/analysis programs: Initial sampling of fish tissue from the pilot constructed wetland project has been conducted and analysis will be completed soon. Additional tissue and water quality sampling from the constructed wetland project is planned for March 2005. The US Fish and Wildlife selenium analysis study may also include tissue sampling and analysis. IID's proposed selenium monitoring program will also conduct tissue sampling after completion of the first year of sediment sampling.

Vegetation and Habitat Studies: Preliminary data from the Drain Vegetation Study is anticipated by December 2004. This data will help identify habitat areas and allow IID to develop management techniques to reduce impacts to vegetation and wildlife. Preliminary evaluation to identify potential locations for the Managed Marsh habitat areas has also been started.